

#6/108
3/4/02 PCT09
P5

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/937,837

DATE: 10/30/2001

TIME: 14:21:07

Input Set : A:\INVIT1280-1.TXT

Output Set: N:\CRF3\10302001\I937837.raw

ENTERED

```

4 <110> APPLICANT: INVITROGEN CORPORATION
5     DALBY, Brian
6     BENNETT, Robert
8 <120> TITLE OF INVENTION: DELIVERY OF FUNCTIONAL PROTEIN SEQUENCES
9     BY TRANSLOCATING POLYPEPTIDES
12 <130> FILE REFERENCE: INVIT1280-1
C--> 14 <140> CURRENT APPLICATION NUMBER: US/09/937,837
C--> 14 <141> CURRENT FILING DATE: 2001-09-28
14 <150> PRIOR APPLICATION NUMBER: PCT/US00/08571
15 <151> PRIOR FILING DATE: 2000-03-31
17 <150> PRIOR APPLICATION NUMBER: 60/127,467
18 <151> PRIOR FILING DATE: 1999-03-31
20 <160> NUMBER OF SEQ ID NOS: 21
22 <170> SOFTWARE: FastSEQ for Windows Version 4.0
24 <210> SEQ ID NO: 1
25 <211> LENGTH: 6404
26 <212> TYPE: DNA
27 <213> ORGANISM: Artificial Sequence
29 <220> FEATURE:
30 <223> OTHER INFORMATION: vector pVP22/Myc-His
32 <400> SEQUENCE: 1
33 gacggatcgg gagatctccc gatccctat ggtcgactct cagtacaatc tgctctgatg      60
34 ccgcatagtt aagccagtat ctgctccctg cttgtgtgtt ggaggtcgct gtagtagtgcg      120
35 cgagcaaaat ttaagctaca acaaggcaag gcttgaccga caattgcatg aagaatctgc      180
36 ttagggttag gcgttttgcg ctgcttcgcg atgtacgggc cagatatacg cgttgacatt      240
37 gattattgac tagttattaa tagtaatcaa ttacggggtc attagttcat agcccatata      300
38 tggagttccg cgttacataa cttacggtaa atggcccgcc tggctgaccg cccaacgacc      360
39 cccgcccatt gacgtcaata atgacgtatg ttcccatagt aacgccaata gggactttcc      420
40 attgacgtca atgggtggac tatttacggt aaactgccca cttggcagta catcaagtgt      480
41 atcatatgcc aagtacgcc cctattgacg tcaatgacgg taaatggccc gcctggcatt      540
42 atgcccagta catgacctta tgggactttc ctacttgcca gtacatctac gtattagtca      600
43 tcgctattac catggtgatg cggttttggc agtacatcaa tgggcgtgga tagcggtttg      660
44 actcacgggg atttccaagt ctccacccca ttgacgtcaa tgggagtttg ttttggcacc      720
45 aaaatcaacg ggaactttcca aaatgtcgta acaactccgc cccattgacg caaatgggcg      780
46 gtaggcgtgt acggtgggag gtctatataa gcagagctct ctggctaact agagaacca      840
47 ctgcttactg gcttatcgaa attaatacga ctcaactatag ggagacccaa gctggctagt      900
48 taagcttatt atgacctctc gccgctccgt gaagtcgggt ccgcgggagg ttccgcgcga      960
49 tgagtacgag gatctgtact acaccccgtc ttacaggtatg gcgagtcgcc atagtccgcc      1020
50 tgacacctcc cgccgtggcg ccctacagac acgctcgcg cagaggggcg aggtccgttt      1080
51 cgtccagtac gcagagtcgg attatgccct ctacggggcg tcgtcttccg aagacgacga      1140
52 acacccggag gtcccccgga cgcggcgtcc cgtttccggg gcggttttgt ccggcccggg      1200
53 gcctgcgcgg gcgcctccgc caccgcgtgg gtccggaggg gccggacgca caccaccac      1260
54 cgccccccgg gccccccgaa cccagcgggt ggcgtctaag gcccccgcg ccccggcggc      1320
55 ggagaccacc cgcggcagga aatcggccca gccagaatcc gccgcaactcc cagacgcccc      1380
56 cgcgctgacg gcgccaaccc gatccaagac acccgcgacg gggttgcca gaaagctgca      1440
57 ctttagcacc gcccccccaa accccgacgc gccatggacc ccccggtgg ccggttttaa      1500
58 caagcgcgtc ttctgcgcgg cggtcgggcg cctggcggcc atgcatgccc ggatggcggc      1560

```

RAW SEQUENCE LISTING

DATE: 10/30/2001

PATENT APPLICATION: US/09/937,837

TIME: 14:21:07

Input Set : A:\INVIT1280-1.TXT

Output Set: N:\CRF3\10302001\I937837.raw

59	tgtccagctc	tgggacatgt	cgcgtccgcg	cacagacgaa	gacctcaacg	aactccttgg	1620
60	catcaccacc	atccgcgtga	cggctctgca	gggcaaaaac	ctgcttcagc	gcgccaacga	1680
61	gttggtgaat	ccagacgtgg	tgcaggacgt	cgacgcggcc	acggcgactc	gagggcgctt	1740
62	tgcggcgctc	cgccccaccg	agcgacctcg	agccccagcc	cgtcccgctt	ctcgccccag	1800
63	acggcccgtc	gagggtagcg	agctcggatc	cactagtcca	gtgtggtgga	attctgcaga	1860
64	tatccagcac	agtggcggcc	gctcagatct	agagggcccg	cggttcgaac	aaaaactcat	1920
65	ctcagaagag	gatctgaata	tgcataccgg	tcatcatcac	catcaccatt	gagtttaaac	1980
66	ccgctgatca	gcctcgactg	tgccttctag	ttgccagcca	tctgttgttt	gccccctccc	2040
67	cgtgccttcc	ttgaccctgg	aaggtgccac	tcccactgtc	ctttcctaata	aaaatgagga	2100
68	aattgcatcg	cattgtctga	gtaggtgtca	ttctattctg	gggggtgggg	tggggcagga	2160
69	cagcaagggg	gaggattggg	aagacaatag	caggcatgct	gggatgcgg	tgggctctat	2220
70	ggcttctgag	gcggaaagaa	ccagctgggg	ctctaggggg	tatccccacg	cgccctgtag	2280
71	cggcgcat	agcgcggcgg	gtgtggtggt	tacgcgcagc	gtgaccgcta	cacttgccag	2340
72	cgccctagcg	cccgtcctt	tcgctttctt	cccttccttt	ctcgccacgt	tcgcccgtt	2400
73	tccccgtcaa	gctctaaatc	ggggcatccc	tttagggttc	cgatttagtg	ctttacggca	2460
74	cctcgacccc	aaaaaacttg	attaggggtga	tggttcacgt	agtgggcca	cgccctgata	2520
75	gacggttttt	cgccctttga	cgttgagtc	cacgttcttt	aatagtggac	tcttgttcca	2580
76	aactggaaca	acactcaacc	ctatctcggt	ctattctttt	gatttataag	ggattttggg	2640
77	gatttcggcc	tattggttaa	aaaatgagct	gatttaacaa	aaatttaacg	cgaattaatt	2700
78	ctgtggaatg	tgtgtcagtt	aggggtgtga	aagtccccag	gctccccagg	caggcagaag	2760
79	tatgcaaagc	atgcatctca	attagtacgc	aaccaggtgt	ggaaagtccc	caggctcccc	2820
80	agcaggcaga	agtatgcaaa	gcatgcatct	caattagtca	gcaaccatag	tcccgcctt	2880
81	aactccgccc	atcccgcctt	taactccgcc	cagttccgcc	cattctccgc	cccatggctg	2940
82	actaatTTTT	tttatttatg	cagaggccga	ggccgcctct	gcctctgagc	tattccagaa	3000
83	gtagttagga	ggcttttttg	gaggcctagg	cttttgcaaa	aagctcccgg	gagcttgat	3060
84	atccattttc	ggatctgatc	aagagacagg	atgaggatcg	tttcgcatga	ttgaacaaga	3120
85	tggattgcac	gcaggttctc	cggccgcttg	ggtggagagg	ctattcggct	atgactgggc	3180
86	acaacagaca	atcggtctgt	ctgatgccgc	cgtgttccgg	ctgtcagcgc	aggggcgccc	3240
87	ggttcttttt	gtcaagaccg	acctgtccgg	tgcctgaat	gaactgcagg	acgaggcagc	3300
88	gcggctatcg	tggctggcca	cgacgggcgt	tccttgcgca	gctgtgctcg	acgttgctac	3360
89	tgaagcggga	agggactggc	tgtatttggg	cgaagtgcgg	gggcaggatc	tcctgtcatc	3420
90	tcaccttget	cctgcgcaga	aagtatccat	catggctgat	gcaatgcggc	ggctgcatac	3480
91	gcttgatccg	gctacctgcc	cattcgacca	ccaagcga	catcgcatcg	agcgagcagc	3540
92	tactcggatg	gaagccggtc	ttgtcgatca	ggatgatctg	gacgaagagc	atcaggggct	3600
93	cgcgcacgcc	gaactgttcg	ccaggctcaa	ggcgcgcgat	cccgcgcggc	aggatctcgt	3660
94	cgtgacccat	ggcgatgcct	gcttgccgaa	tatcatggtg	gaaaatggcc	gcttttcttg	3720
95	attcatcgac	tgtggccggc	tgggtgtggc	ggaccgctat	caggacatag	cgttggtctac	3780
96	ccgtgatatt	gctgaagagc	ttggcggcga	atgggctgac	cgcttcctcg	tgctttacgg	3840
97	tatcgccgct	cccgattcgc	agcgcacgc	cttctatcgc	cttcttgacg	agttcttctg	3900
98	agcgggactc	tggggttcgc	gaaatgaccg	accaagcgac	gcccacactg	ccatcacgag	3960
99	atttcgattc	caccgcgcgc	ttctatgaaa	ggttgggctt	cggaatcggt	ttccgggacg	4020
100	ccggtctggat	gacctccag	cgcggggatc	tcatgctgga	gttcttcgcc	caccccaact	4080
101	tgtttattgc	agcttataat	ggttacaaat	aaagcaatag	catcacaaat	ttcacaaata	4140
102	aagcattttt	ttactgcat	tctagtgttg	gtttgtccaa	actcatcaat	gtatcttatc	4200
103	atgtctgtat	accgtcgacc	tctagctaga	gcttggcgta	atcatggtca	tagctgtttc	4260
104	ctgtgtgaaa	ttgttatccg	ctcacaattc	cacacaacat	acgagccgga	agcataaagt	4320
105	gtaaagcctg	gggtgcctaa	tgagttagct	aactcacatt	aattgcgttg	cgtcactgc	4380
106	ccgctttcca	gtcgggaaac	ctgtcgtgcc	agctgcatta	atgaatcggc	caacgcgcgg	4440
107	ggagaggcgg	tttgcgtatt	gggcgtctt	ccgttctctc	gctcactgac	tcgctgcgct	4500

RAW SEQUENCE LISTING

DATE: 10/30/2001

PATENT APPLICATION: US/09/937,837

TIME: 14:21:07

Input Set : A:\INVIT1280-1.TXT

Output Set: N:\CRF3\10302001\I937837.raw

```

108 cggctcgttcg gctgcggcga gcggtatcag ctactcaaaa ggcggtaata cggttatcca 4560
109 cagaatcagg ggataacgca ggaaagaaca tgtgagcaaa aggccagcaa aagggcagga 4620
110 accgtaaaaa ggccgcgttg ctggcgtttt tccataggct ccgccccctt gacgagcatc 4680
111 acaaaaaatcg acgctcaagt cagagggtggc gaaacccgac aggactataa agataccagg 4740
112 cgtttccccc tggaagctcc ctctgtcgct ctctgtttcc gacctgccc cttaccggat 4800
113 acctgtccgc ttttctccct tcgggaagcg tggcgctttc tcaatgctca cgctgtagg 4860
114 atctcagttc ggtgtaggtc gttcgtccca agctgggctg tgtgcacgaa cccccgttc 4920
115 agcccgaccg ctgcgcctta tccggttaact atcgtcttga gtccaacccg gtaagacacg 4980
116 acttatcgcc actggcagca gccactggta acaggattag cagagcgagg tatgtaggcg 5040
117 gtgctacaga gttcttgaag tgggtggccta actacggcta cactagaagg acagtatttg 5100
118 gtatctgcgc tctgctgaag ccagttacct tcggaaaaag agttggtagc tcttgatccg 5160
119 gcaaacaaac caccgctggt agcgggtggt tttttgtttg caagcagcag attacgcgca 5220
120 gaaaaaaagg atctcaagaa gatcctttga tcttttctac ggggtctgac gctcagtgg 5280
121 acgaaaactc acgttaaggg attttggtca tgagattatc aaaaaggatc ttcacctaga 5340
122 tcctttttaa ttaaaaatga agttttaaat caatctaaag tatatatgag taaacttggt 5400
123 ctgacagtta ccaatgctta atcagtggag cacctatctc agcgtctgt ctatttcgtt 5460
124 catccatagt tgcctgactc ccgctcgtgt agataactac gatacgggag ggcttaccat 5520
125 ctggccccag tgcctgaatg ataccgcgag acccagctc accggtcca gatttatcag 5580
126 caataaacca gccagccgga agggccgagc gcagaagtgg ctagagtaag tagttcgcca gttaatagtt 5640
127 ccattccagtc tattaattgt tgcgggaag ctagagtaag tagttcgcca gttaatagtt 5700
128 tgcgcaacgt tgttgccatt gctacaggca tcgtggtgtc acgctcgtcg tttggtatgg 5760
129 cttcattcag ctccggttcc caacgatcaa ggcgagttac atgatcccc atgttggtgca 5820
130 aaaaagcggg tagctccttc ggtcctccga tcgttgctag aagtaagttg gccgcagtgt 5880
131 tatcactcat ggttatggca gcaactgcata attctcttac tgtcatgcca tccgtaagat 5940
132 gcttttctgt gactggtgag tactcaacca agtcattctg agaatagtgt atgcggcgac 6000
133 cgagttgctc ttgcccggcg tcaatacggg ataataccgc gccacatagc agaactttaa 6060
134 aagtgtcat cattggaaaa cgttcttcgg ggcgaaaact ctcaaggatc ttaccgctgt 6120
135 tgagatccag ttcatgttaa cccactcgtg caccactg atcttcagca tcttttactt 6180
136 tcaccagcgt ttctgggtga gcaaaaacag gaaggcaaaa tgcgcgcaaaa aagggaataa 6240
137 gggcgacacg gaaatgttga atactcatac tcttcctttt tcaatattat tgaagcattt 6300
138 atcagggtta ttgtctcatg agcggataca tatttgaatg tatttagaaa aataaaciaa 6360
139 taggggttcc gcgcacattt ccccgaaaag tgccacctga cgtc 6404

```

141 <210> SEQ ID NO: 2

142 <211> LENGTH: 6420

143 <212> TYPE: DNA

144 <213> ORGANISM: Artificial Sequence

146 <220> FEATURE:

147 <223> OTHER INFORMATION: vector pVP22/Myc-His-TOPO

149 <400> SEQUENCE: 2

```

150 gacggatcgg gagatctccc gatcccttat ggtcgactct cagtacaatc tgctctgatg 60
151 ccgcatagtt aagccagtat ctgctccctg cttgtgtgtt ggaggtcgct gagtagtgcg 120
152 cgagcaaaat ttaagctaca acaaggcaag gcttgaccga caattgcatg aagaatctgc 180
153 ttaggggttag gcgttttgcg ctgcttcgag atgtacgggc cagatatacg cgttgacatt 240
154 gattattgac tagttattaa tagtaatcaa ttacggggtc attagttcat agcccatata 300
155 tggagttccg cgttacataa cttacggtaa atggcccgc tggctgaccg cccaacgacc 360
156 cccgcccatt gacgtcaata atgacgtatg ttcccatagt aacgccaata gggactttcc 420
157 attgacgtca atgggtggac tatttacggg aaactgccca cttggcagta catcaagtgt 480
158 atcatatgcc aagtacgccc cctattgacg tcaatgacgg taaatggccc gcctggcatt 540
159 atgcccagta catgacctta tgggactttc ctacttgcca gtacatctac gtattagtca 600

```

RAW SEQUENCE LISTING

DATE: 10/30/2001

PATENT APPLICATION: US/09/937,837

TIME: 14:21:07

Input Set : A:\INVIT1280-1.TXT

Output Set: N:\CRF3\10302001\I937837.raw

160	tcgctattac	catggtgatg	cggtttttggc	agtacatcaa	tgggcgtgga	tagcggtttg	660
161	actcacgggg	atttccaagt	ctccacccca	ttgacgtcaa	tgggagtttg	ttttggcacc	720
162	aaaatcaacg	ggacttttoca	aatgtcgta	acaactccgc	cccattgacg	caaattggcg	780
163	gtaggcgtgt	acgggtgggag	gtctatataa	gcagagctct	ctggctaact	agagaaccca	840
164	ctgcttactg	gcttatcgaa	attaatacga	ctcactatag	ggagacccaa	gctggctagt	900
165	taagcttatt	atgacctctc	gccgctccgt	gaagtcgggt	ccgcgggagg	ttccgcgcga	960
166	tgagtacgag	gatctgtact	acaccccgtc	ttcaggtatg	gcgagtcctg	atagtcctgc	1020
167	tgacacctcc	cgcggtggcg	ccctacagac	acgctcgcgc	cagaggggag	aggtccgttt	1080
168	cgtccagtac	gacgagtcgg	attatgccct	ctacgggggc	tcgtcttccg	aagacgacga	1140
169	acacccggag	gtcccccgga	cgcggcgctc	cgtttccggg	gcggttttgt	ccggccccgg	1200
170	gcctgcgcgg	gcgcctccgc	cacccgctgg	gtccggaggg	gccggacgca	caccaccac	1260
171	cgcggggggg	gccccccgaa	cccagcgggt	ggcgactaag	gccccgcggg	ccccggcggc	1320
172	ggagaccacc	cgcggcagga	aatcgcccca	gccagaatcc	gccgcactcc	cagacgcccc	1380
173	cgcgtcgacg	gcgccaaacc	gatccaagac	acccgcgcag	gggctggcca	gaaagctgca	1440
174	cttttagcacc	gcccccccaa	accccgacgc	gccatggacc	ccccgggtgg	ccggctttta	1500
175	caagcgcgtc	ttctgcgcgc	cggtcggggc	cctggcggcc	atgcatgccc	ggatggcggc	1560
176	ggtccagctc	tgggacatgt	cgcgtccgcg	cacagacgaa	gacctcaacg	aactccttgg	1620
177	catcaccacc	atccgcgtga	cggcttcgca	gggcaaaaac	ctgcttcagc	gcgccaaacga	1680
178	gttggtgaat	ccagacgtgg	tgcaggacgt	cgcgcggccc	acggcgactc	gagggcgctc	1740
179	tgcggcgctg	cgcgccaccg	agcgacctcg	agccccagcc	cgtccgctt	ctcgccccag	1800
180	acggccccgc	gagggtaacc	agctcggatc	cactagtcca	gtgtggtgga	attgccctta	1860
181	agggcaattc	tgcagatata	cagcacagtg	gcggccgctc	gagtctagag	ggcccgcggg	1920
182	tcgaacaaaa	actcatctca	gaagaggatc	tgaatatgca	taccggtcac	catcaccatc	1980
183	accattgagt	ttaaaccgcg	tgatcagcct	cgaactgtgc	ttctagttag	cagccatctg	2040
184	ttgtttgccc	ctcccccggt	ccttccctga	ccctggaagg	tgccactccc	actgtccttt	2100
185	cctaataaaa	tgaggaaatt	gcacgcgcat	gtctgagtag	gtgtcattct	attctggggg	2160
186	gtgggggtgg	gcaggacagc	aagggggagg	attgggaaga	caatagcagg	catgctgggg	2220
187	atgcgggtgg	ctctatggct	tctgaggcgg	aaagaaccag	ctggggctct	aggggggtat	2280
188	cccacgcgcc	ctgtagcggc	gcattaagcg	cggcgggtgt	ggtggttacg	cgcagcgtga	2340
189	ccgtacacct	tgcagcgcgc	ctagcgcgcc	ctcctttcgc	tttcttccct	tcctttctcg	2400
190	ccacgttcgc	cggctttccc	cgtcaagctc	taaatcgggg	catcccttta	gggttccgat	2460
191	ttagtgtctt	acggcacctc	gacccccaaa	aacttgatta	gggtgatggg	tcacgtagtg	2520
192	ggccatcgcc	ctgatagacg	gttttttcgcc	ctttgacgtt	ggagtccacg	ttctttaata	2580
193	gtggactctt	gttccaaaact	ggaacaacac	tcaaccctat	ctcggctctat	tccttttgatt	2640
194	tataagggat	tttggggatt	tcggcctatt	ggttaaaaaa	tgagctgatt	taacaaaaat	2700
195	ttaacgcgaa	ttaattctgt	ggaatgtgtg	tcagttaggg	tgtggaaaagt	ccccaggctc	2760
196	cccaggcagg	cagaagtatg	caaagcatgc	atctcaatta	gtcagcaacc	aggtgtggaa	2820
197	agtccccagg	ctccccagca	ggcagaagta	tgcaaagcat	gcactctcaat	tagtcagcaa	2880
198	ccatagtccc	gcccctaact	cgcgccatcc	cgcgccctaa	tccgcccagt	tccgcccatt	2940
199	ctccgcccc	tggctgacta	atTTTTTTT	tttatgcaga	ggccgaggcc	gcctctgctt	3000
200	ctgagctatt	ccagaagttag	tgaggaggct	tttttgaggg	cctaggcttt	tgcaaaaagc	3060
201	tcccgggagc	ttgtatatcc	atTTTtcggat	ctgatcaaga	gacaggatga	ggatcgtttc	3120
202	gcattgattga	acaagatgga	ttgcacgcag	gttctccggc	cgtttgggtg	gagaggctat	3180
203	tgggctatga	ctgggcacaa	cagacaatcg	gctgctctga	tgccgccgtg	ttccggctgt	3240
204	cagcgcaggg	gcgcccgggt	ctttttgtca	agaccgacct	gtccggtgcc	ctgaatgaac	3300
205	tgcaggacga	ggcagcgcgg	ctatcgtggc	tggccacgac	gggcgttcc	tgcgcagctg	3360
206	tgtctgacgt	tgctactgaa	gcgggaaggg	actggctgct	attgggcgaa	gtgcgggggc	3420
207	aggatctcct	gtcatctcac	cttgctcctg	ccgagaaagt	atccatcatg	gctgatgcaa	3480
208	tgcggcggct	gcatacgctt	gatccggcta	cctgcccatt	cgaccaccaa	gcgaaacatc	3540

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/937,837

DATE: 10/30/2001

TIME: 14:21:07

Input Set : A:\INVIT1280-1.TXT

Output Set: N:\CRF3\10302001\I937837.raw

```

209 gcatcgagcg agcacgtact cggatggaag ccggtcttgt cgatcaggat gatctggacg 3600
210 aagagcatca ggggctcgcg ccagccgaac tgttcgccag gctcaaggcg cgcattgccg 3660
211 acggcgagga tctcgtcgtg acccatggcg atgctgtctt gccgaatata atggtggaaa 3720
212 atggccgctt ttctggattc atcgactgtg gccggctggg tgtggcggac cgtatcagg 3780
213 acatagcgtt ggctaccogt gatattgctg aagagcttgg cggcgaatgg gctgaccgct 3840
214 tcctcgtgct ttacgggtatc gccgctcccg attcgcagcg catcgccttc tatcgccttc 3900
215 ttgacgagtt cttctgagcg ggactctggg gttcgcgaaa tgaccgacca agcgacgccc 3960
216 aacctgccat cactgagattt cgattccacc gccgccttct atgaaagggt gggcttcgga 4020
217 atcgttttcc gggacgcggg ctggatgata ctccagcgcg gggatctcat gctggagttc 4080
218 ttcccccacc ccaacttggt tattgcagct tataatgggt acaaataaag caatagcata 4140
219 acaaatttca caaataaagc atttttttca ctgcattcta gttgtggttt gtccaaactc 4200
220 atcaatgtat cttatcatgt ctgtataccg tcgacctcta gctagagctt ggcgtaataca 4260
221 tggatcatagc tgtttcctgt gtgaaattgt tatccgctca caattccaca caacatacga 4320
222 gccggaagca taaagtgtaa agcctggggg gcctaattgag tgagctaact cacattaatt 4380
223 gcgttgcgct cactgcccgc ttccagtcgt ggaacctgtg cgtgccagct gcattaatga 4440
224 atcgcccaac gcgcggggag aggcggtttg cgtattgggc gctcttcgc ttctcgtc 4500
225 actgactcgc tgcgctcggt cgttcggctg cggcgagcgg tatcagctca ctcaaaggcg 4560
226 gtaatacggg tatccacaga atcaggggat aacgcaggaa agaacatgtg agcaaaaggc 4620
227 cagcaaaaag ccaggaaccg taaaaaggcc gcgttgcgtg cgtttttcca taggctccgc 4680
228 cccctgacg agcatcaca aaatcgacgc tcaagtcaga ggtggcgaaa cccgacagga 4740
229 ctataaagat accaggcgtt tccccctgga agctccctcg tgcgctctcc tgttcgacc 4800
230 ctgcccgtta ccgataacct gtccgccttt ctcccttcgg gaagcgtggc gctttctcaa 4860
231 tgctcacgct gtaggtatct cagttcgggt taggtcgttc gctccaagct gggctgtgtg 4920
232 caccgaacccc ccgttcagcc cgaccgctgc gccttatccg gtaactatcg tcttgagtc 4980
233 aaccgcgtta gacacgactt atcgccactg gcagcagcca ctggtaacag gattagcaga 5040
234 gcgaggtatg taggcggtgc tacagagttc ttgaagtggg ggcctaacta cggctacact 5100
235 agaaggacag tatttggtat ctgcgctctg ctgaagccag ttaccttcgg aaaaagagtt 5160
236 ggtagctctt gatccggcaa acaaaccacc gctggtagcg gtggtttttt tgtttgcaag 5220
237 cagcagatta cgcgcagaaa aaaaggatct caagaagatc ctttgatctt ttctacgggg 5280
238 tctgacgctc agtggaaacga aaactcacgt taagggtatt tggatcatgag attatcaaaa 5340
239 aggatcttca cctagatcct tttaaattaa aaatgaagtt ttaaataaat ctaaagtata 5400
240 tatgagtaaa cttggtctga cagttaccaa tgcttaatac gtgaggcacc tatctcagcg 5460
241 atctgtctat ttogttcctc catagttgcc tgactcccg tctgttagat aactacgata 5520
242 cggggagggt taacctctgg cccagtgct gcaatgatac cgcgagaccc acgctcaccg 5580
243 gctccagatt tatcagcaat aaaccagcca gccggaaggg ccgagcgagc agtggtcct 5640
244 gcaactttat ccgcctccat ccagtcattt aattgttgcc gggagagtag agtaagtagt 5700
245 tcgccagtta atagtttgcg caacgttggt gccattgcta caggcatcgt ggtgtcacgc 5760
246 tcgctggttg gtatggcttc attcagctcc ggttcccaac gatcaaggcg agttacatga 5820
247 tcccccatgt tgtgcaaaaa agcggttagc tcttcgggtc ctccgacgtg tgtcagaagt 5880
248 aagttggccg cagtgttatc actcatggtt atggcagcac tgcataatc tcttactgtc 5940
249 atgccatccg taagatgctt ttctgtgact ggtgagtact caaccaagtc attctgagaa 6000
250 tagtgtatgc ggcgaccgag ttgctcttgc ccggcgtcaa tacgggataa taccgcgcca 6060
251 catagcagaa ctttaaaagt gctcatcatt ggaaaacgtt cttcggggcg aaaactctca 6120
252 aggatcttac cgtgttgag atccagttcg atgtaaccca ctctgcacc caactgatct 6180
253 tcagcatctt ttactttcac cagcgtttct gggtagcaaa aaacaggaag gcaaaatgcc 6240
254 gcaaaaaagg gaataagggc gacacggaaa tgttgataac tcatactctt cttttttcaa 6300
255 tattattgaa gcatttatca gggttattgt ctcatgagcg gatacatatt tgaatgtatt 6360
256 tagaaaaata acaaaatagg ggttcgcgcg acatttcccc gaaaagtgcc acctgacgtc 6420
259 <210> SEQ ID NO: 3

```

Use of n and / or Xaa has been detected in the Sequence Listing. Review the Sequence Listing to ensure a corresponding explanation is present in the <220> to <223> fields of each sequence using n or Xaa.

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/937,837

DATE: 10/30/2001

TIME: 14:21:08

Input Set : A:\INVIT1280-1.TXT

Output Set: N:\CRF3\10302001\I937837.raw

L:14 M:270 C: Current Application Number differs, Replaced Current Application No

L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:292 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4

L:294 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4

L:296 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4

L:298 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4

L:300 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4

L:488 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20